APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,144	07/18/2003	Melissa Wiedemann	017750-420	1878

7590   10/05/2010

PATRICK C. KEANE
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER
RASHID, DAVID

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
10/05/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/622,144	WIEDEMANN ET AL.
	Examiner	Art Unit
	DAVID P. RASHID	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *06 July 2010*.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-9 and 50-64* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-9, 50-58, 61, 63 and 64* is/are rejected.
7) ☒ Claim(s) *59, 60 and 62* is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Table of Contents

Amendment & Claim Status

[1]   This Detailed Action is responsive to Amendment received on Jul. 6, 2010. Claims 1-9 and 50-64 pending.

In response to Amendment at 10, the previous claim objections and § 112 rejections are withdrawn

Claim Rejections - 35 U.S.C. § 101

[2]   35 U.S.C. § 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Bilski – Abstract Idea Test

[3]   **Claims 1-9** and **50-56** are rejected under 35 U.S.C. § 101 as not falling within one of the four statutory categories of invention.

In view of Supreme Court precedent[1] and recent opinion in *Bilski*[2], a process/method claim ("method-claim") under § 101 are patent-eligible so long as it is not disqualified as one of the exceptions to § 101 (i.e., laws of nature, physical phenomena, and abstract idea). The USPTO has recently provided guidance to determine whether the method-claim, viewed as a

---

[1] See *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); and *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).
[2] *Bilski v. Kappos*, 561 U.S. ___ (2010).

whole, is disqualified as an abstract idea.[3]   Factors for determining whether a method-claim is drawn to an abstract idea, *as a whole*, include whether the method-claim is (i) tied to a particular machine or apparatus; (ii) transforms underlying subject matter (such as a particular article or material) to a different state or thing; (iii); involves an application of a law of nature; and (iv) a general concept (e.g., mathematical concept, mental activity, principle, theory) involved in executing the method-steps.[4]   In addition, extrasolution activity (whether pre- or post-) or field-of-use involvement in favor of patent-eligible subject matter (e.g., involving a particular machine or article transformation) for the method-claim, as a whole, must impose meaningful limits on the execution of the claimed method-steps.[5]

The concept from Claims 1-9 and 50-56 (i.e., identifying objects in an image) is not tied to a particular machine, does not transform an underlying particular article or material, does not involve an application of a law of nature, and thus could be recognized as only a general concept. In addition, the method-steps using "receiving an image with a first resolution, the image representing a scene including physical objects" may be (i) strictly image-analysis (i.e., mathematical computation of an image signal); or (ii) is pre-solution activity. An image including a physical object is not physical because an image is not physical (e.g., the physical object representation in an image is of value 179, instead of value 119). The method-steps that do impose meaningful limits do not require a particular machine or transform an underlying particular article. The concept from Claims 1-9 and 50-56 remains an unpatentable abstract idea. Allowing Applicant(s) to patent the concept would preempt use of this approach in all fields, and would grant a monopoly over the abstract idea.[6]

It is suggested to tie a particular machine (e.g., a "processor" or "computer" if supported in the specification, not "machine") to a meaningful limit on the claim's scope (e.g., the selecting and processing method-steps of Claim 1).

---

[3] See *Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of Bilski v. Kappos*, Federal Register, Vol. 75, No. 143, pp. 43922-43928, Jul. 27, 2010 (available at http://www.uspto.gov/patents/law/notices/75fr36357.pdf).
[4] *Id.*
[5] *Id.*
[6] See *Bilski* at 15.

Claim Rejections - 35 U.S.C. § 102

[4]   The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Brill

Remarks Unpersuasive

[5]   Amendment at 11-14 regarding rejected Claims 1, 4, 6, 50, 51, 54-58, 61, 63 and 64

under 35 U.S.C. § 102(b) as being anticipated by *Brill et al.*, U.S. Pat. No. 6,542,621 ("Brill")

(filed Aug. 31, 1999, claiming benefit to Aug. 31, 1998) have been respectfully and fully

considered, but are found unpersuasive.

Applicant argues in contract to Claim 1, the portions of Brill relied upon by the Examiner

in rejecting Claim 1 is directed to tracking objects in a sequence of images. *See* Amendment at

11. Applicant also states Brill discloses a method of tracking objects over many frames of video.

Id. at 12.

The Examiner agrees both that Brill discloses tracking objects over many frames of

video, and that Brill is relied upon to tracking objects in a sequence of images. However, the

rejection itself is directed to the current frame in Brill, and it is the current frame relied upon that

uses prior images in the video. Similarly by example, the current frame in Brill relies on other

teachings, such as the fact the computer used has also powered on. However, the anticipation of

Claim 1 does not include the computer powering on. Claim 1 does not include limitations that

specifically exclude the user of prior images in a video.

Applicant argues the Brill determination does not select a detection algorithm from among plural detection algorithms. Applicant states that no further processing is necessary if the object is determined to be tall and considered a person. On the other hand, there is no disclosure of selecting among detection algorithms if the object is not considered to be a person. *See* Amendment at 13.

However, plural detection algorithms are selected based on the height of the object. *See* Brill at 4:64-5:30. One detection algorithm detects the object as a person if the height is above a threshold vertical height (of the bounding box). *See id.* at 4:64-10. Another detection algorithm maps the endpoints of the lower side of the bounding box to determine the height. *See id.* at 5:11-23. Another detection algorithm is if the determined height is not tall enough to be a person, to use alternate detection algorithms and detect the object as either a briefcase, notebook, box, or a computer monitor. *See id.* at 5:24-30. It is implied even these alternate detection algorithms may be different to detect various objects such as a briefcase, notebook, box, or a computer monitor. In summary, Brill discloses a plurality of detection algorithms at 4:64-5:30 from which one is selected based on the height of the object.

Applicant argues the height of one bounding box is not used to select an algorithm which is then used to detect another object in a higher resolution version of the image. Brill does not process an image at the first higher resolution to identify another object in any manner, because (i) the p-template represents a completely different image; and (ii) all object identification occurs at the same resolution. *See* Amendment at 13.

However, once objects are detected in the second resolution image of the current first higher resolution video image, the detected objects are tracked. *See* Brill at 5:32-36. The detected objects in the current frame (i.e., the first higher resolution image) use p-templates both prior frames and the current frame.

When two people overlap in the first resolution higher (the current frame; e.g., fig. 6c), Brill identifies the parts of another person both overlapping and behind the person in front (i.e., "the region of partial occlusion can be detected", "region of overlap" and "the unambiguous person regions" at 6:18-43). These areas of another person both overlapping and behind the first person in front is the "another object" identified in the first higher resolution image of Claim 1.

This detected "another object" (i.e., "the region of partial occlusion can be detected", "region of overlap" and "the unambiguous person regions" at 6:18-43) depends on the first person detected in the second resolution image (e.g., the person in front of the other in fig. 6c). This is also in accordance with the selected detection algorithm, because those areas of "another object" (e.g., those areas of the person behind the first person in fig. 6c) would not be detected if not for the selected detection algorithm that detected a first person (e.g., the first person in front in fig. 6c) in the second resolution.

In summary, the height of the first person in front, in fig. 6c, detected it as a person in the second resolution (from among plural detection algorithms). In accordance with the detected person in the second resolution, areas that overlap a second person behind the detected person is "another object" identified. To do so, the first resolution image (fig. 6c) is processed using p-templates and the detected objects using the second resolution image (including the person detected in front).

[6]   **Claims 1, 4, 6, 50, 51, 54-58, 61, 63** and **64** are rejected under § 102(e) as being anticipated by Brill.

Regarding **Claim 1**, Brill discloses a method (fig. 1) for identifying objects (e.g., the objects in fig. 3a) in an image comprising:

receiving an image (fig. 1, item 23; fig. 2b) with a first resolution (the resolution of figs. 2b, 3a), the image representing a scene including physical objects (e.g., the objects in fig. 3a such as the two persons, desk, chair, carpet, walls);

transforming the image at the first resolution to an image at a second resolution (figs. 2c-h), the first resolution being higher than the second resolution ("the difference image of FIG. 2C is sub-sampled in order to reduce the number of pixels, for example to a 128 by 128 or 256 by 256 pixel image. The resulting low-resolution image is shown in FIG. 2D." at 4:5-18);

processing the image at the second resolution to identify an object ("an identification analysis, in an attempt to identify a detected object" at 4:64-5:30; e.g., "a person" at 4:64-5:30) fig. 2h, item 43; "bounding box" at 5:50-57), from among the physical objects (e.g., the objects in fig. 3a such as the two persons, desk, chair, carpet, walls) included in the received image, in the image at the second resolution;

selecting a detection algorithm from among plural detection algorithms (4:64-5:30 that disclosed at least two different detection algorithms dependent on the height of the bounding box; e.g., a second detection algorithm at 5:23-30 for detecting it as a briefcase when the height of the bounding box is not tall enough to be a person in a first detection algorithm at 5:11-22) based on a condition ("the height of the bounding box" at 5:11-30) associated with the object ("an identification analysis, in an attempt to identify a detected object" at 4:64-5:30; e.g., "a person" at 4:64-5:30) identified at the second resolution; and

processing the image at the first resolution using the object (e.g., the person in front at fig. 6c) identified at the second resolution to identify another object (e.g., the parts of another person both overlapping and behind the person in front at fig. 6c; i.e., "the region of partial occlusion can be detected", "region of overlap", "the unambiguous person regions" at 6:18-43), from among the physical objects (e.g., the objects in fig. 3a such as the two persons, desk, chair, carpet, walls) included in the received image, in the image at the first resolution according to the selected detection algorithm (in accordance with the fact the detection algorithm at the second resolution detected a person).

Regarding **Claim 6**, Brill discloses further comprising:

determining whether the object and the another object are desired objects based upon a context (the context being the area where the camera is located for "physical security, home automation, and sporting event analysis. . .necessary to track the movements of one or more people and objects in a scene monitored" at 2:6-17) associated with at least one of the image at the first resolution and the image at the second resolution.

Regarding **Claim 50**, Brill discloses wherein the detection algorithm for identifying the other object at the first resolution is automatically selected from among the plural detection algorithms (it is automatically selected dependent on "the height of the bounding box" at 5:11-30).

Regarding **Claim 51**, Brill discloses wherein the plural detection algorithms include at least two algorithms respectively corresponding to gray level co-occurrence identification, linear object identification ("the height of the bounding box" at 5:11-30), primitive extraction identification, cloud masking, river masking, activity detection identification, edge extraction identification, gradient magnitude thresholding, busy mask identification, gradient direction edge

thinning, line extraction identification, segmentation "the height of the bounding box" at 5:11-30, region merging, collinear line identification, parallel line identification, parallel edge identification, intensity valuation identification, intensity variance identification, small object detection, morphological filtering, structure detection, lines of communication detection, and contextual line reasoning.

Regarding **Claim 54**, Brill discloses wherein the receiving of the image includes receiving the image at the first resolution form at least one of an imaging device (fig. 1, item 23) and a photographic device.

Regarding **Claim 55**, Brill discloses wherein the condition associated with the object identified at the second resolution includes at least one of a geographic location, a terrain type, a ground sample distance, weather, a time of day, temperature, a viewing condition, a band frequency of a sensor, a degree of freedom of the sensor, a viewing angle of the sensor, and a positional vector ("the height of the bounding box" at 5:11-30 includes the use of a positional vector in the image).

Regarding **Claim 56**, Brill discloses displaying at least one of the object identified at the second resolution and the another object identified at the first resolution on a display device (fig. 1, item 21).

Regarding **Claim 57**, Claim 1 recites identical features as in the computer-readable recording medium (fig. 1, items 33, 34) having a computer program (it is inherent the processor and memory and a program to run the computer and implement the method-steps) recorded thereon that causes a computer to identify objects (e.g., the objects in fig. 3a) in an image (fig. 1, item 23; fig. 2b), the program causing a computer to perform operations as in Claim 57. Thus, references/arguments equivalent to those presented above for Claim 1 are equally applicable to Claim 57.

Regarding **Claim 58**, Claim 55 recites identical features as in the computer-readable recording medium as in Claim 58. Thus, references/arguments equivalent to those presented above for Claim 55 are equally applicable to Claim 58.

Regarding **Claim 61**, Claim 51 recites identical features as in the computer-readable recording medium as in Claim 61. Thus, references/arguments equivalent to those presented above for Claim 51 are equally applicable to Claim 61.

Regarding **Claim 63**, Claim 6 recites identical features as in the computer-readable recording medium as in Claim 63. Thus, references/arguments equivalent to those presented above for Claim 6 are equally applicable to Claim 63.

Regarding **Claim 64**, Claim 56 recites identical features as in the computer-readable recording medium as in Claim 64, including the display device (fig. 1, item 21) communicatively connected to the computer (fig. 1, item 27). Thus, references/arguments equivalent to those presented above for Claim 56 are equally applicable to Claim 64.

Claim Rejections - 35 U.S.C. § 103

[7]   The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Brill in view of Hsu

[8]   **Claim 7** is rejected under § 103(a) as being unpatentable over Brill in view of U.S. Patent No. 6,618,490 ("Hsu").

Regarding **Claim 7**, Brill does not disclose wherein the object is a river.

Hsu discloses a method (fig. 6) for identifying objects and features in an image that includes wherein the object is a river ("a river has been labeled from the single feature image"; fig. 8d).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the objects identified of Brill to include rivers as taught by Hsu "to efficiently manipulate, analyze, and display all forms of geographically referenced information" and to "using newly-generated images, described above, to extract additional objects from the original image. The newly-created image can be used as an input to the original segmentation analysis, creating an additional information layer to perform object extraction. For instance, if a river has been labeled from the single feature image and a buffer around the river is generated around the river boundary contour, the buffer can be used to infer that a given object is located within a predetermined distance from the river bank." Hsu at 4:6-8 and 14:44-53 (emphasis added).

Allowable Subject Matter

[9]   **Claims 2-5, 8, 9,** and **52** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 101 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

[10]   **Claims 59, 60,** and **62** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for Indicating Allowable Subject Matter

[11]   The following is a statement of reasons for the indication of allowable subject matter:

  See Detailed Action at p. 8, Apr. 7, 2010.

  Regarding **Claim 4**, the prior art does not teach performing as a function of a type of terrain in the image at the second resolution and the image at the first resolution.

Conclusion

[12]   Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578 and fax number (571)270-2578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

  If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-74537453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

  Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/*David P. Rashid*/
Examiner, Art Unit 2624

David P Rashid
Examiner
Art Unit 26244